Adolescent Childbirth Associated with Mobility Disability Among Women Ages 15-49: an Analysis of Population Health Surveys from 14 Low- and Middle-Income Countries

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Figures S1: Hypothesized Causal Pathways

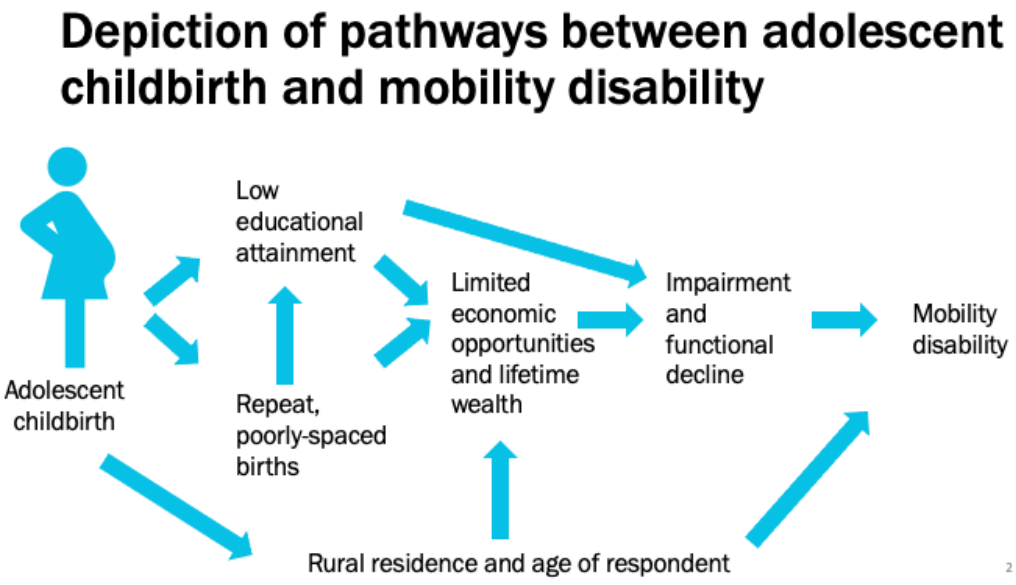

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Figure S2: Pooled prevalence (marginal predictions) of mobility disability comparing women with first childbirth during adolescence and first birth in adulthood based in all countries (n=14).

Note: estimates are adjusted for age at interview, rural/urban residence, educational attainment, and wealth quintile.

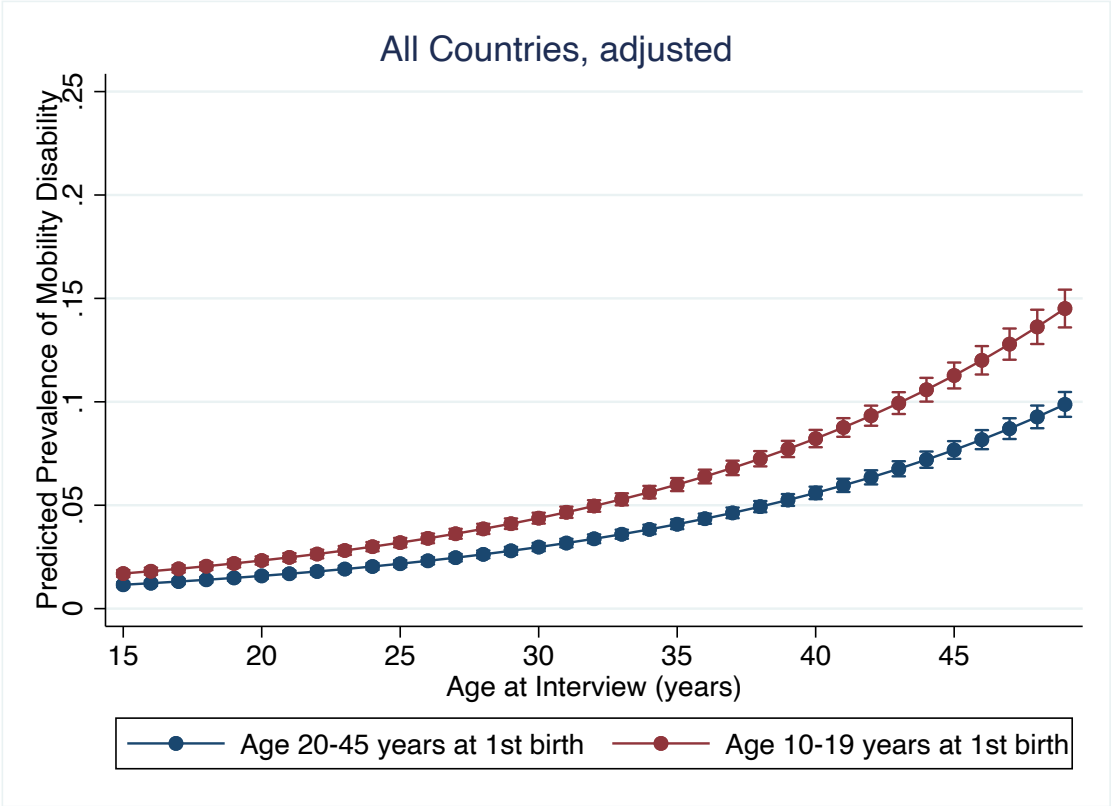

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Figure S3: Pooled prevalence (marginal predictions) of mobility disability comparing women with first childbirth during adolescence and first birth in adulthood based on countries that used non-standard measures (n=6).

Note: estimates are adjusted for age at interview, rural/urban residence, educational attainment, and wealth quintile.

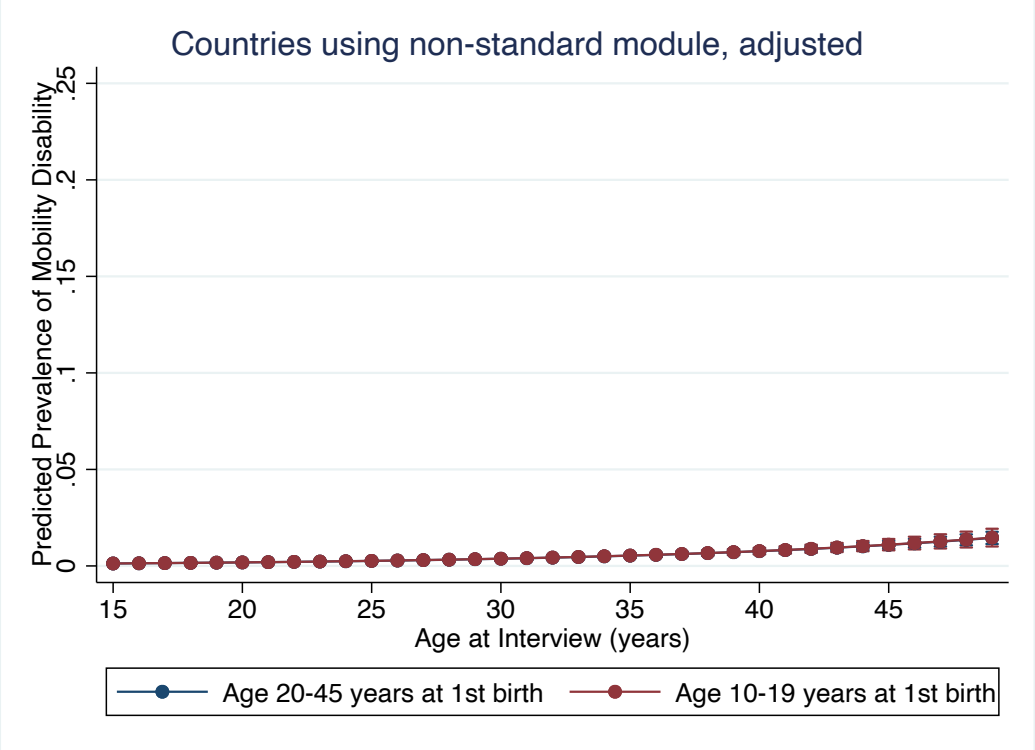

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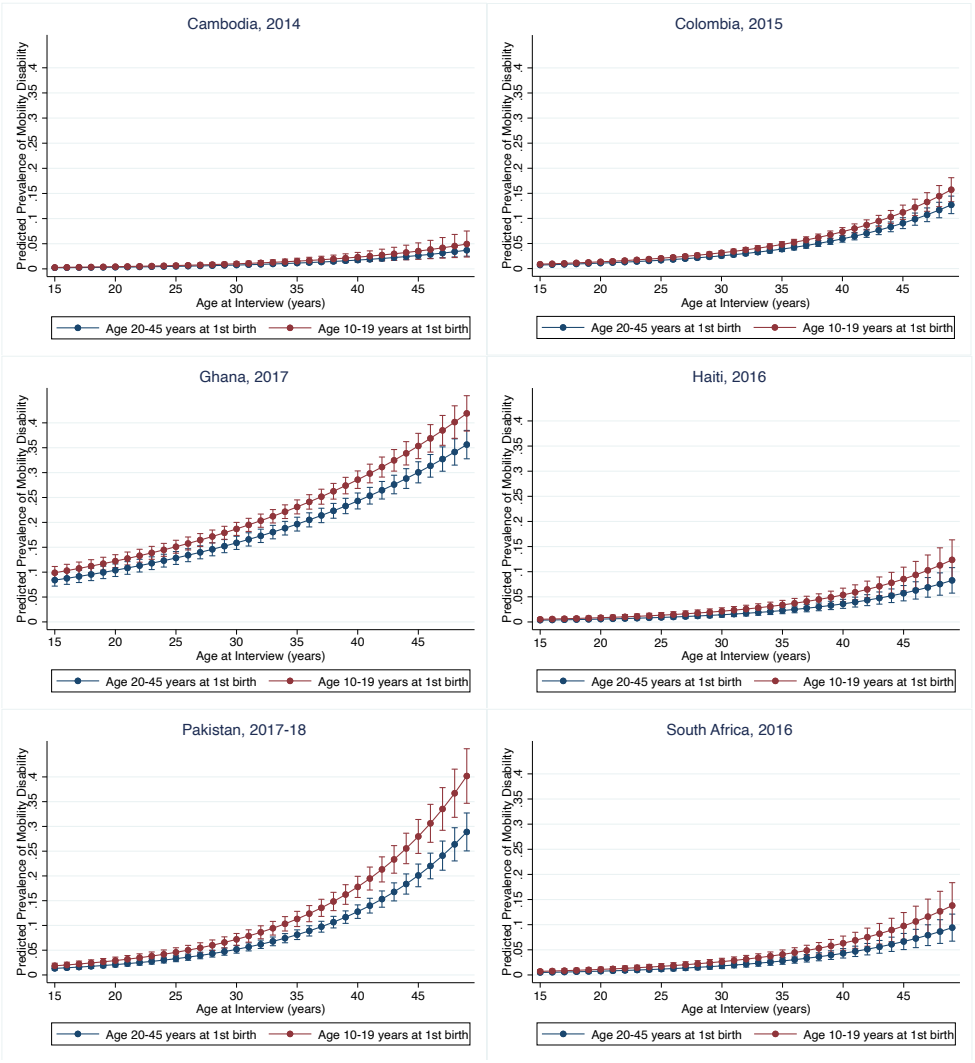
Figure S4: Predicted prevalence of mobility disability comparing women with first childbirth during adolescence and first childbirth in adulthood, by country, among those using the standard disability question.

Note: estimates are adjusted for age at interview, rural/urban residence, educational attainment, and wealth quintile.



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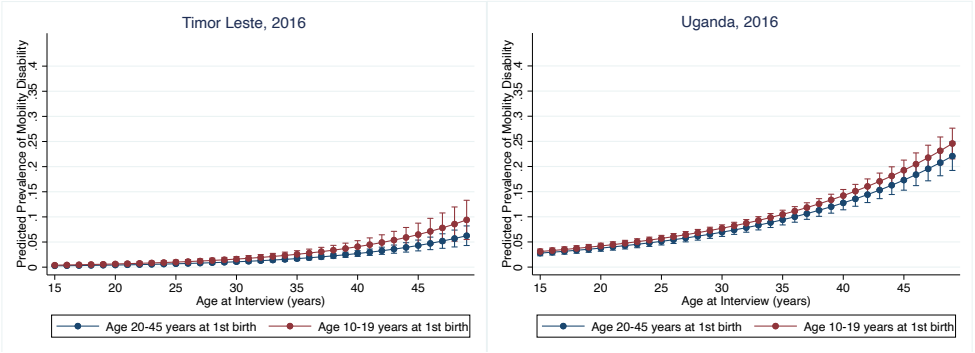

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Figure S5: Predicted prevalence of mobility disability comparing women with first childbirth during adolescence and first childbirth in adulthood, by country, among those using non-standard disability measures

Note: estimates are adjusted for age at interview, rural/urban residence, educational attainment, and wealth quintile.

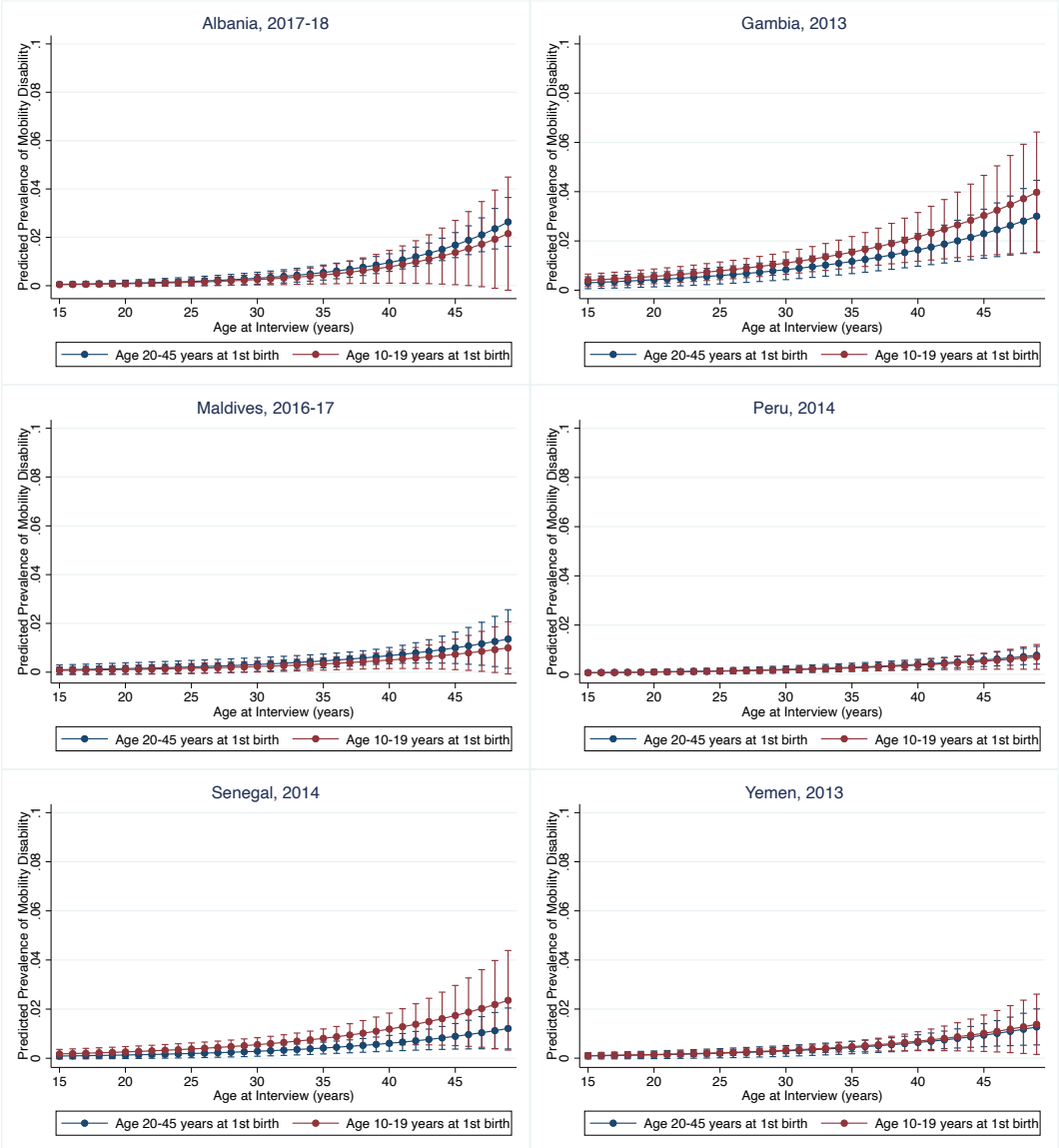

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Table S1: Mobility disability questions and response options for the countries included in the analysis.

Country	**Question**	**Response Options Indicating Mobility Disability**
Countries/surveys Using the Short Set on Functioning Disability Mobility Question		
Cambodia, 2014	23: Does [NAME] have difficulty walking or climbing steps?	2=With some difficulty 3=With a lot of difficulty 4=Cannot walk or climb stairs at all
Colombia, 2015	53. The following questions are about the ability of people to perform daily activities, without help or assistance. Would you say given their physical and mental condition, can [NAME] move their body, walk, or go up or down stairs?	1=Cannot do it 2=Can do it with a lot of difficulty 3=Can do it with some difficulty
Ghana, 2017	923: I would like to know if you have difficulty walking or climbing steps. Would you say that you have no difficulty walking or climbing steps, some difficulty, a lot of difficulty, or cannot walk or climb steps at all?	2=Some difficulty 3=A lot of difficulty 4=Cannot at all
Haiti, 2016	34: I would like to know if (name) has difficulty walking or climbing steps. Would you say that (name) have no difficulty walking or climbing steps, some difficulties, a lot of difficulty, or cannot walk or climb steps at all?	2=Some difficulties 3=A lot of difficulties 4=Cannot walk or climb at all
Pakistan, 2017-18	33: I would like to know if (NAME) has difficulty walking or climbing steps. Would you say that (NAME) has no difficulty walking or climbing steps, some difficulty, a lot of difficulty, or cannot walk or climb steps at all?	2=Some difficulty 3=A lot of difficulty 4=Cannot walk or climb at all
South Africa, 2016	22: Does (NAME) have difficulty walking a kilometre or climbing a flight of steps? IF YES, PROBE: With some difficulty, with a lot of difficulty, or cannot walk or climb steps at all?	1=With some difficulty 2=With a lot of difficulty 3=Cannot walk or climb at all

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Timor-Leste, 2016	27: Does (NAME) have any difficulty walking or climbing steps?	2=Some difficulty 3=A lot of difficulty 4=Can't walk at all
Uganda, 2016	31: I would like to know if (NAME) has difficulty walking or climbing steps. Would you say that (NAME) has no difficulty walking or climbing steps, some difficulty, a lot of difficulty, or cannot walk or climb steps at all?	2=With some difficulty 3=With a lot of difficulty 4=Cannot walk or climb at all
Countries/surveys Not Using Alternative Mobility Disability Questions		
Albania, 2017-18	1106: What type of chronic disability do you have?	D=Mobility problems
Gambia, 2013	27: Does (NAME) have any difficulty using his / her legs even for simple activities such as walking or climbing up the stairs?	1=Yes
Maldives, 2016-17	27: What type of disability does (NAME) have?	07=Medical disability
Peru, 2014	26: Does (NAME) have any limitation or permanent disability?	1=To move around, walk, using arms or legs
Senegal, 2014	31: Does (NAME) have a reduction or weakness in the following functions: CIRCLE ALL THE MENTIONED FUNCTIONS A=SIGHT B=HEARING C= COMPREHENSION & COMMUNICATION D=MOBILITY E=SELF-CARE F=INTERACTION WITH PEOPLE 32: WHAT IS THE PRINCIPAL CAUSE OF THE DISABILITY OF (NAME)?	D=Mobility
Yemen, 2013	32: Does (NAME) face limitations of any of the following: A = SIGHT? B = HEARING? C = COMPREHENSION & COMMUNICATION? D = MOBILITY? E = SELF-CARE? F = DEALING WITH PEOPLE?	D=Mobility

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Table S2: Explanatory Variables of Relevance to the Analysis

Variable	DHS Measure	Potential for Confounding	Consistently Measured Across DHS?
Age	All surveys asked respondents their month and year of birth, as well as their age at their last birthday. In cases of discrepancy, survey administrators were encouraged to correct the inconsistencies. Age was reported in years.	Chronological age and disability are positively associated.[1]	Yes
Location of Residence	Across the surveys, residence was consistently recorded as urban or rural.	Disability is reported at higher rates in rural than urban settings.[2] Location of residence also relates to other factors of interest, such as education and wealth.	Yes
Education	12 of the 14 surveys asked respondents to report their highest year of schooling as none, primary, secondary, or higher, while 2 of the 14 surveys (Ghana and Yemen) contained unique response options.	Educational attainment is consistently and negatively associated with mobility disability, especially with increasing chronological age.[3,4] It is also negatively associated with adolescent childbirth.[5]	To harmonize across surveys, educational attainment was re-coded across the countries as none, primary, or secondary or higher.
Wealth Quintile	All surveys collected standardized information on a respondent's household assets. DHS utilizes a standardized recoding of these assets across surveys in order to create the wealth index, a composite measure of a respondent's household standard of living (ICF, 2018). The wealth index is then separated into quintiles, with Q1 representing the poorest 20 percent of householders and Q5 the richest 20 percent of households.	Economic factors, including limited income, are associated with frailty among older adults.[3,4,6] It has also been established that there is a strong correlation between poverty and disability in LMICs.[7]	For purposes of harmonizing the datasets, we coded a wealth index variable in quintiles from the DHS-created cut-off points for urban and rural wealth quintile included in the publicly available datasets.

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Table S3: Crude and adjusted associations between adolescent childbirth and mobility disability, by country

Note: Bold font indicates statistically significant associations at a p-value of 0.05 or less. *PR between adolescent childbirth and mobility disability, obtained in separate Poisson regression models. Each (except crude, shown in the first column, and the full adjusted, shown in the last column) is adjusted only for the variable in the corresponding column.

	Crude PR (95% CI) p-value	Adjusted PR (95% CI)* p-value				
		Age	Residence	Education	Wealth Quintile	**All co-variates**
Albania, 2017-18	0.61(0.23-1.60) 0.31	0.84(0.31-2.29) 0.74	0.60(0.23-1.57) 0.29	0.57(0.22-1.48) 0.25	0.57(0.22-1.51) 0.26	0.82(0.30-2.20) 0.69
Cambodia, 2014	1.23(0.79-1.93) 0.36	1.36(0.87-2.13) 0.18	1.22(0.78-1.90) 0.38	1.19(0.76-1.89) 0.45	1.23(0.78-1.95) 0.37	1.33(0.84-2.12) 0.23
Gambia, 2013	1.19(0.70-2.01) 0.53	1.25(0.73-2.14) 0.41	1.23(0.72-2.11) 0.45	1.17(0.68-2.00) 0.57	1.22(0.72-2.10) 0.46	1.32(0.76-2.30) 0.32
Ghana, 2017	**1.14(1.05-1.24) 0.00**	**1.23(1.14-1.33) <0.001**	**1.13(1.05-1.23) <0.001**	**1.09(1.01-1.18) 0.04**	**1.11(1.02-1.20) 0.01**	**1.18(1.09-1.27) <0.001**
Haiti, 2016	1.06(0.78-1.45) 0.70	1.34(0.99-1.82) 0.06	1.09(0.79-1.51) 0.58	1.03(0.75-1.44) 0.84	1.07(0.79-1.45) 0.66	**1.49(1.08-2.06) 0.02**
Maldives, 2016-17	1.12(0.48-2.63) 0.79	0.83(0.37-1.85) 0.64	1.05(0.46-2.39) 0.90	0.81(0.37-1.79) 0.60	0.96(0.40-2.36) 0.94	0.73(0.33-1.64) 0.45
Pakistan, 2017-18	**1.21(1.06-1.38) 0.01**	**1.37(1.19-1.57) <0.001**	**1.24(1.08-1.41) <0.001**	1.14(1.00-1.31) 0.06	**1.21(1.05-1.39) 0.01**	**1.39(1.21-1.60) <0.001**
Peru, 2014	0.83(0.42-1.62) 0.59	1.01(0.50-2.04) 0.98	0.85(0.44-1.67) 0.65	0.73(0.36-1.47) 0.37	0.84(0.37-1.88) 0.67	0.91(0.40-2.06) 0.82
Senegal, 2014	1.78(0.91-3.50) 0.09	**2.21(1.10-4.46) 0.03**	1.63(0.81-3.31) 0.17	1.58(0.82-3.03) 0.17	1.82(0.91-3.65) 0.09	1.95(0.96-3.95) 0.06
South Africa, 2016	**1.43(1.04-1.97) 0.03**	**1.62(1.18-2.22) <0.001**	**1.42(1.03-1.96) 0.03**	1.31(0.94-1.81) 0.11	1.33(0.97-1.83) 0.08	**1.47(1.07-2.02) 0.02**
Timor-Leste, 2016	1.21(0.90-1.63) 0.20	**1.50 (1.11-2.02) <0.001**	1.14(0.85-1.53) 0.37	1.07(0.80-1.45) 0.62	1.21(0.90-1.64) 0.20	**1.50(1.10-2.05) 0.01**
Uganda, 2016	1.08(0.96-1.22) 0.19	**1.22(1.08-1.38) <0.001**	1.05(0.92-1.18) 0.48	0.91(0.81-1.03) 0.15	1.03(0.91-1.16) 0.64	1.11(0.98-1.26) 0.09
Yemen, 2013	0.87(0.43-1.77) 0.70	1.07(0.50-2.27) 0.87	0.87(0.42-1.77) 0.69	0.81(0.39-1.67) 0.57	0.88(0.43-1.81) 0.74	1.08(0.51-2.32) 0.84
Colombia, 2015	0.99(0.84-1.15) 0.89	**1.35(1.16-1.57) <0.001**	0.97(0.83-1.13) 0.70	0.89(0.76-1.03) 0.13	0.97(0.83-1.14) 0.73	**1.24(1.06-1.45) 0.01**

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